GA-2622
DTV SCRAMBLER
USER'S MANUAL

C O N T E N T S

1 SAFETY INSTRUCTIONS ----------1
2 COMPOSITIONS OF SYSTEM AND OPERATING PRINCIPLE----------2
2.1 COMPOSITIONS OF SYSTEM
2.2 OPERATING PRINCIPLE
3 MAIN FEATURES---------- 3
4 TECHENICAL SPECFICATION----------3
4.1 DATA INPUT INTERFACE
4.2 DATA OUTPUT INTERFACE
4.2.1 ASI OUTPUT INTERFACE
4.3 NETWORK INTERFACE
4.4 KEEP STATUS OF POWER OFF
4.5 POWER SUPPLY
4.6 OPERATION ENVIORMENT
4.7 RADIATION AND SAFETY STANDARD
4.8 MECHANICAL CHARACTERISTICS:
4.9 WEIGHT
5 EQUIPMENT CONNECTIONS----------5
5.1 PANLEL DISPLAY
5.2 FRONT PANEL SKETCH
5.3 REAR PANEL SKETCH
6 OPERATION---- ----------6
6.1 KEYBOARD FUNCTION
6.2 OPERATION MODE SELECT
6.2.1 SELECTING MENU
6.3 HOW TO SET AND CHANGE PARAMENTERS
6.3.1 PARAMETER SETTING
6.3.2 INPUT PARAMETER SETTING
6.3.3 OUTPUT PARAMETER SETTING
6.3.4 SCRAMBLING PARAMETER SETTING
6.3.5 NETWORK PARAMETER SETTING
6.3.6 SI PARAMETER SETTING
6.3.7 OUTPUT STATUS PARAMETER SETTING
7 SYSTEM ERRORS AND DEBUGGING----------13
7.1 INDICATOR LIGHTS
7.2 TROUBLE SHOOTING
8. NETWORK MANAGEMENT ----------

1 Safety instruction

1.1 Before starting using this unit, please be sure to refer to this manual.

1.2 Do not to open the cabinet, otherwise the guarantee to repair are not available. Meanwhile touching the inside makes you in great danger of electric shock.

1.3 Please make sure to cut off the power supply if you will not use this unit in long term, and do not use any broken jack, which could result in fire or electric shock.

1.4 Wet hands are forbidden to touch the power jack, to avoid risk of electric shock.

1.5 Please pull the plug itself instead of the wire when you pull out power plug,.

1.6 Any thing flammable and metal or liquid, which will destroy the unit, must be kept out the box.

1.7 Do not place this unit in a location near a heat source such as radiator or air ducts, or in a place exposed to direct sunlight, excessive dust, moisture, rain, mechanical vibration.

1.8 Keep the device working in a good ventilative environment, if not the destruction will occur.

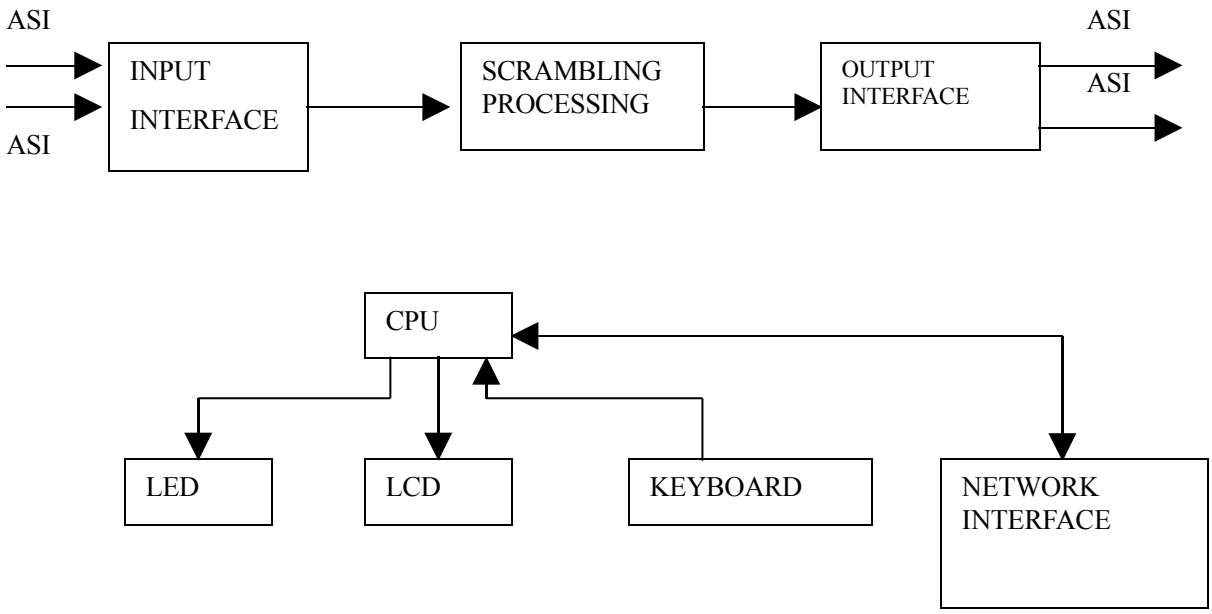
1.9 Please keep the packaging for the safety of transit.

NOTE: After all parameters are set up, please press the LOCK button. When LCD display is dark, the protection function takes effect.

2. System composition and operating principle

2.1 System composition

THE SYSTEM BLOCK DIAGRAM:



2.1.1 ASI input interface

ASI input, it's MPTS (Multi-Program Transport Stream) or SPTS. The useful data will be output and the null packet、needless data will be filtered after processing.

2.1.2 ASI output interface

ASI output after scrambling, it's scrambled MPTS (Multi-Program Transport Stream) or SPTS.

2.2 Operating principle

GA-2622 DTV Scrambler receives SPTS or MPTS which up to DVB, the null packet or needless packet will be filtered. The PID could be reset if necessary and pick-up the relevant information for further processing.

Extract and process any of the program specific information (PSI) and service information (SI).
Scramble each valid net-load.

Re-identify the program clock reference (PCR) with system time clock (SGA).

3、Main features

- Support 2 ASI input interface and able to re-mux and scramble single or multiple programs.
- Input valid bit rate for ASI channel: 216Mbps(max)
- RJ45 ETHERNET interface, can be controlled and supervised from remote
- PCR correction
- Filling null packet automatically, output bit rate invariableness.
- NIT and TDT information can be edited and inserted.
- 188 and 204 input packet automatic identification
- Two output TS packet format are available (188 and 204 packet)
- Multiple output bit rate are available (188 and 204 packet)
- Failure alarming
- LCD display
- Power off memory

4 Technical specification

4.1 Data input interface

4.1.1 ASI input interface

Input: DVB ASI interface
Connector: BNC
Impedance: 75Ω
TS standard: ISO13818-1
Input valid bit rate: 214Mbps(max)
Packet format: 188/204 bytes (automatic identification)
TS input mode: equality/burst/un-equality

4.2 Data output interface

4.2.1 ASI output interface

DVB standard
Connector: BNC
Impedance: 75Ω
TS standard: ISO13818-1
TS Packet format: 188/204 bytes (none of RS encoding for 204bytes)
TS output mode: equality

4.3 ETHERNET Interface:

IEEE802.3 ETHERNET, RJ45 interface

4.4 Keep status during power off

The unit will keep status with the power being cut off, in order to auto-reset when electrified again.

4.5 Power supply

Voltage: 90~250VAC
Frequency: 50Hz± 2%
Power consumption: 25W

4.6 Operation environment

Operation temperature: 0~50°C;
Storage temperature: -25~+55°C.
Relative humidity: 10~75%

4.7 Radiation and safety

Up to GB13837-92 and GB8898-88

4.8 Mechanic characteristics

Dimension: 44.5mm(1U)*483mm*(19")*300mm

4.9 Weight

4.0kg

Note: The information contained herein is subject to change without notice.

5、 Equipment connection

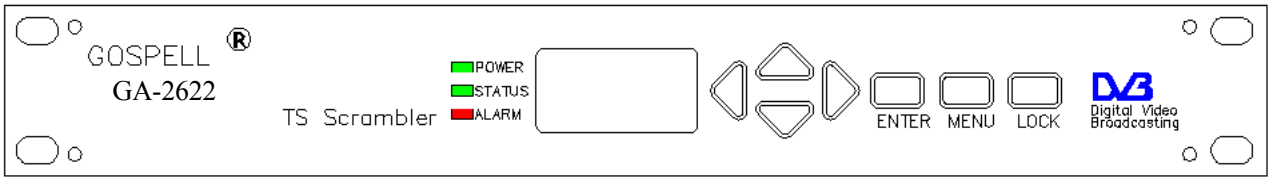
5.1 Panel display

POWER

STATUS

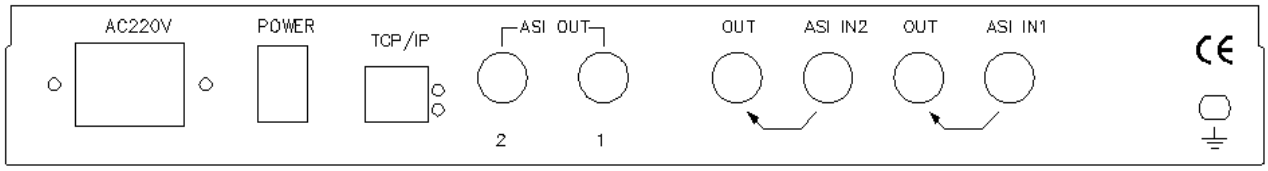
ALARM

5.2 Front panel sketch



5-1: GA-2622 Front Panel

5.3 Rear Panel Sketch



5-2:GA-2622 Rear panel

6. Operation

6.1 Keyboard Function

Move RIGHT/LEFT key: choose sub-menu/move cursor

Move UP/DOWN key: setup cursor/change parameters

ENTER: confirm operations, cycle main menu under main menu

MENU: Select main menu and cancel operations

Note: 1.Be sure to press ENTER key after setup the parameters, all new parameters will take effect only without *, otherwise the old parameters will be kept.

2. The keyboard will be locked automatically in 50seconds without pressing any button..

3. If the keyboard is locked, press UP and DOWN button, the keyboard will be unlocked.

6.2 Operation mode select (keyboard unlocked)

6.2.1 Main MENU display

Press MENU to display main menu circularly

ONCE: 1.0 VIEW ALARMS

ALARMS LIST EMPTY (no alarm info)

TWICE 2.00.0 CHA01 STATUS (Input TS status)

ALL PROGRAMS:026

Three times 3.00.0 CHA01 STATUS (if the second input channel is available)

ALL PROGRAMS:026

Four times 4.00.0 OUT TS

OUT PROGRAMS:026

Five times 5.0 BYPASS SWITCH (PID ON/OFF)

OFF

Six times 6.0 NIT TABLE MODE

DONOT IN NEW TABLE (Keep original NIT)

Seven times 7.0 NOW DATE

2004-01-01

Eight times 8.0 AC INFO. NUMBER

050

Nine times 9.0 CA SYSTEM CHA.01 (CA system 1 working status)

DISABLE

Ten times 10.00 DISTRUB STATUS
USE KEY<UP><DOWN>
Eleven times 11.0 PARA. STATUS
WORKING AS SETTING (working status is normal)

6.3 How to set and change parameters

6.3.1 Set system parameters

A: Press MENU once: display as follows
1.0 VIEW ALARMS
ALARMS LIST EMPTY or INPUT SIGNAL LOSS or IN TS NO SIGNAL
B: Press UP/DOWN key to view/change parameters /select functions
▼ 1.0VIEW ALARMS
CLEAR ALL ALARMS
C: Press ENTER to store change or confirm operation
1.0 VIEW ALARMS
ALL ALARMS BE CLEARED
D: Press LEFT/RIGHT to circle sub-menu
D1 1.1 SET IP ADDR.
120.120.120.160
12 1.2 SET NET MASK
255.255.255.000
23 1.3 SET NET GATE
120.120.120.001
14 1.4 NET STATUS
NOT CONNETTED or CONNETTED
C5 1.5 SERIAL No.:
XXXXXXXXXXXXXXXXX (18 digits)
6 1.6 VERSION
H : XX.XX S:XX.XX
X7 1.7 GET PRESET PARAMETER
*FACTORY PRESET
*8 1.8 RELOAD PROGRAMS (Channel resume)
*RELOAD ALL CHANNEL INFO.
Press ENTER to resume factory default
P9 SELECT LANGUE (GA-2622 use)
*ENGLISH

Press Enter Factory setting will be set

E、 Press LOCK button will cancel operations at any status. Press MENU will exit the current operation

6.3.2 Set input channel parameters

A: Press MENU twice: display as follows

2.00.0 CHA01 STATUS

ALL HAVE: 026

B: Press LEFT/RIGHT to view program's info:

B1 2.00.1 INPUT SIGNAL

188 BYTE

12 2.00.2 CHANNEL TS_ID

00001

03 2.00.3 CHANNEL ON_ID

65535

64 2.00.4 IN CODE RATE (Input total data bit rate)

038.875Mbps

05 2.00.5 IN USED RATE (Input valid data bit rate)

026.491Mbps

Press MENU to exit current operation.

C: Press UP/DOWN to view program name

C1 2.01.0 PROG01 NAME

DWtv

2 2.02.0 PROG02 NAME

NN

3 2.03.0 PROG03 NAME

RAI International

|

|

|

25 2.26.0 PROG26 NAME

RTPi

D: Press LEFT/RIGHT to view or change program parameters in the menu of program name

2.01.0 PROG01 NAME (the first program name)

)1 2.01.1 P01 SELECT (select output program)

SELECTTED TO OUT TS

Press UP/DOWN to change the setup, press ENTER to confirm.

NOT BE SELECTED

T2 2.01.2 PROG01 CODE RATE(valid data bit rate of program 1)
004.391Mbps
03 2.01.3 PROG01 PCR PID
0A82(HEX) 2690(DEC)
04 2.01.4 PROG01 MPEG-2 V(video PID)
0901(HEX) 2305(DEC)
05 2.01.5 PROG01 MPEG-2 A(audio PID)
0902(HEX) 2306(DEC)

The setup of other programs is the same as above.

6.3.3 Set output parameters

A、 Press MENU three times, display as follows

PThree times 4.00.0 OUT TS (number of output programs)
OUT PROGRAMS:026
111 4.00.1 OUTPUT TS_ID
00008 (changeable)

)2 4.00.2 OUTPUT ON_ID
65535 (changeable)

)3 4.00.3 CAT WORK MODE
MAKE A NEW TABLE (create new CAT chart)
* Press UP, DOWN to show display
NOT MAKE NEW TABLE (not to make a new CAT chart)

)4 4.00.4 SDT TABLE MODE
MAKE A NEW TABLE
* Press UP, DOWN to show display
NOT MAKE NEW TABLE

6.3.4 PID Parameter setting

A、 Press MENU 5 times display as follows :

5.0 BYPASS SWITCH (PID switch ON/OFF)
OFF *ON
*1 5.1 BYPASS PID0 (direct PID0)

CH1 1FFF(HEX) 8191(DEC) (changeable)

)2 5.2 BYPASS PID1 (directPID1)

CH1 1FFF(HEX) 8191(DEC) (changeable)

)8 5.8 BYPASS PID7 (direct PID7)

CH1 1FFF(HEX) 8191(DEC) (changeable)

6.3.5 Set network parameters

A、 Press MENU six times, display as follows

6.0 NIT TABLE MODE
INSERT NEW TABLE (insert new NIT)
* Press UP/DOWN to display as follows in second line
DONOT IN NEW MODE (Keep original NIT)

(1 6.1 NETWORK VERSION

00001 (read only)

)2 6.2 NETWORK ID

00001 (read only)

)3 6.3 NETWORK NAME

T (read only)

)4 6.4 CHANNELS IN NIT

001 (read only)

6.3.6 SI Parameter setting

A、 Press MENU 7 times , display as follows :

7.0 NOW DATE

2003-08-01 (changeable)

)4 7.1 NOW TIME

00-38-01 (changeable)

)5 7.2 TDT TABLE MODE

INSERT NEW TABLE

* Press UP/DOWN to display as follows in second line

DONOT IN NEW MODE (Keep original EMM)

6.3.7 AC information parameter status

A、 Press MENU 8 times , display as follows :

8. AC INFO. NUMBER

002

6.3.8 CA Status

A、 Press MENU 9 times , display as follows :

9.0 CA SYSTEM CHA.01 (CA system 1 working status)

DISABLE (read only)

* Press UP/DOWN to display as follows in second line

9.1 CA SYSTEM CHA.02 (CA system 2 working status)

DISABLE (read only)

6.3.9 Scrambling status

A、 Press MENU 10 times , display as follows :

10.00 DISTRUB STATUS

USE KEY<UP><DOWN>

6.3.10 Output parameter setting

A、 Press MENU 11 times , display as follows :

11.0 PARAMETER STATUS

WORKING AS SETTING

* Press UP/DOWN to display as follows in second line

EBUILDING PARA (rebuild parameter?)

*Press ENTER to execute

B、 Press LEFT, RIGHT to view and change output data; press ENTER to confirm setting; press MENU to exit current mode

c1 11.1 OUTPUT TS RATE
050.00Mbps (changeable)
*Press ENTER to execute

7 System errors and debugging

7.1 Indicator lights

There are three LED indicator lights.
1)“POWER” lights up (Red) means power switch on and working orderly.
2) “ STATUS” lights up(Green) means the status of input signal of unit is in order.
3) “ALARM” lights up(Green) means unit is working orderly.

7.2 Trouble Shooting

7.2.1 The ”POWER” indicator does not illuminate.

Please check the wire to make sure the wire is connected to the socket properly and the power switch is on.

7.2.2”STATUS” illuminates (in red)

This means the equipment is in status of parameters setup.

7.2.3”AlARM”flashes

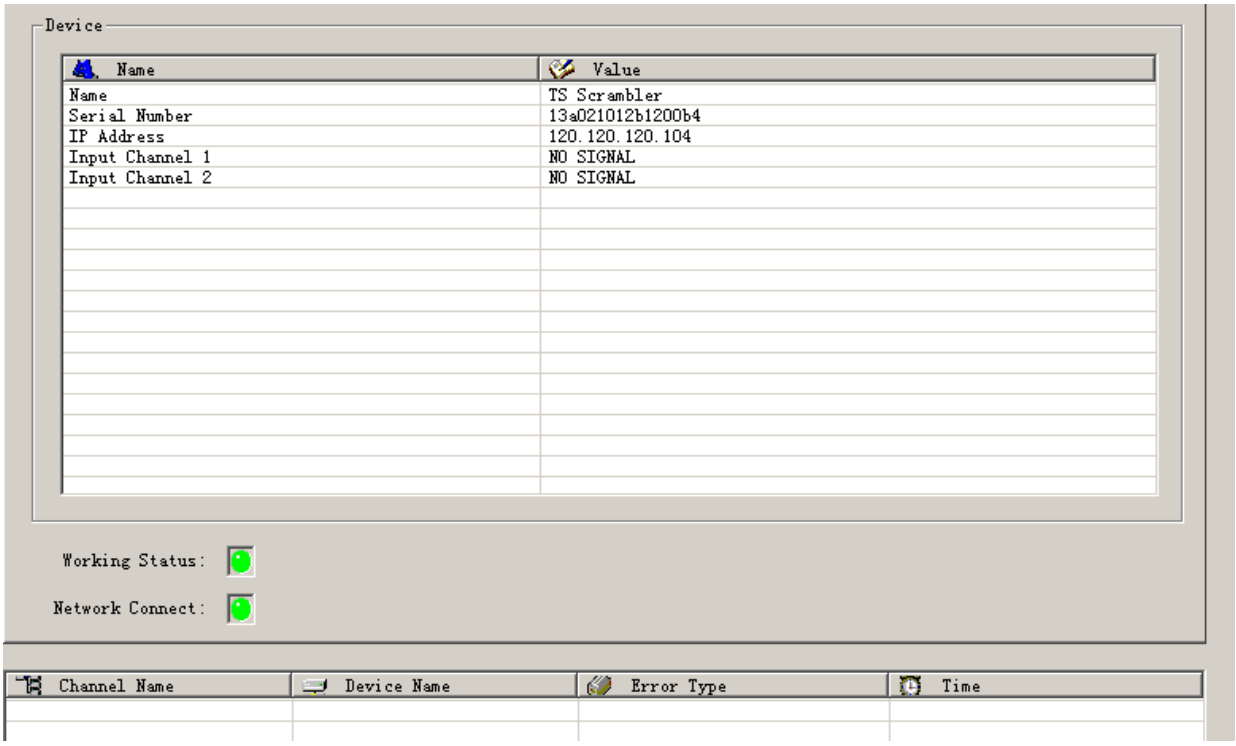
This means the equipment is out of order for some faults. Please debug according to the instruction from LED.

It means no input signal or input signal from ASI isn’t in order if it shows “IN TS NO SIGNAL”.
Please check ASI input signal source and connect cable.

8. Network management

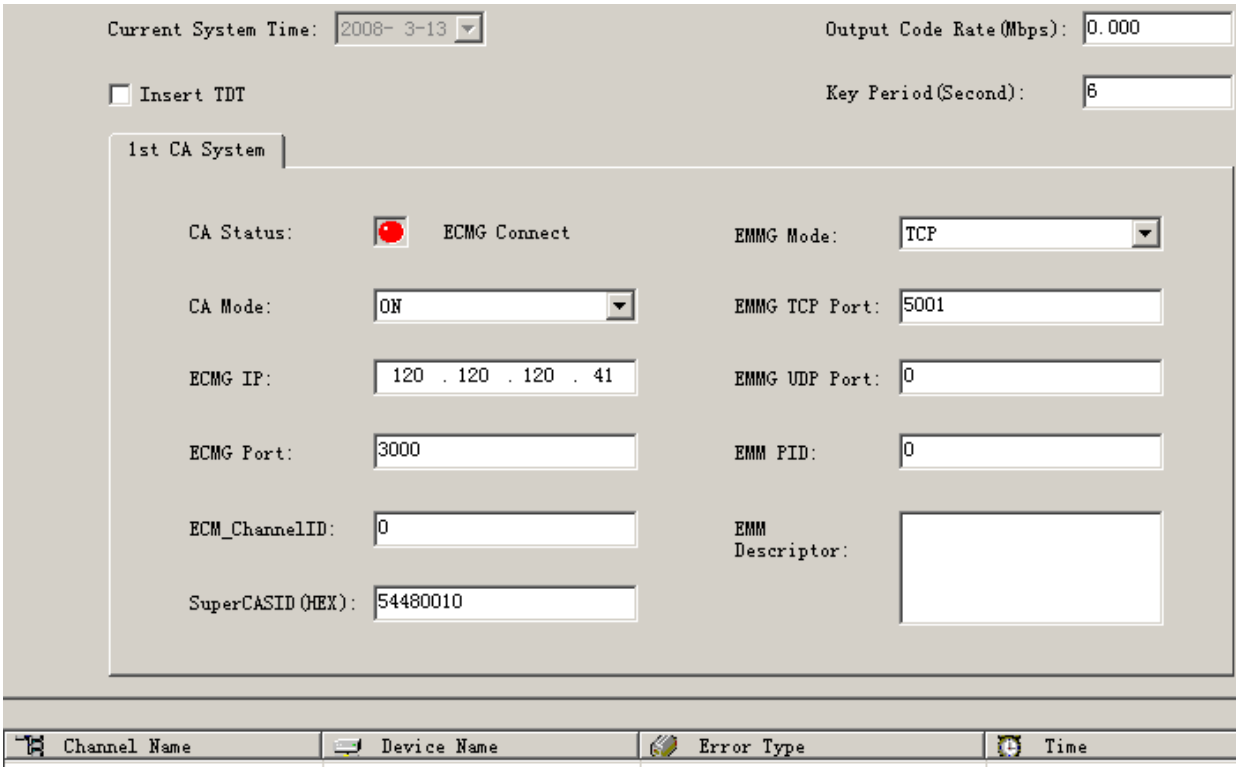
The scrambler consist of main page, scrambler parameter, bypass parameter, NIT parameter, channel parameter, scrambling setting, AC information.

1、 **The Main page display some main parameters ,the status and network connection of device.** 。



Picture 8.1

2、 **"Scrambler parameter "will show and setting scramble parameters**



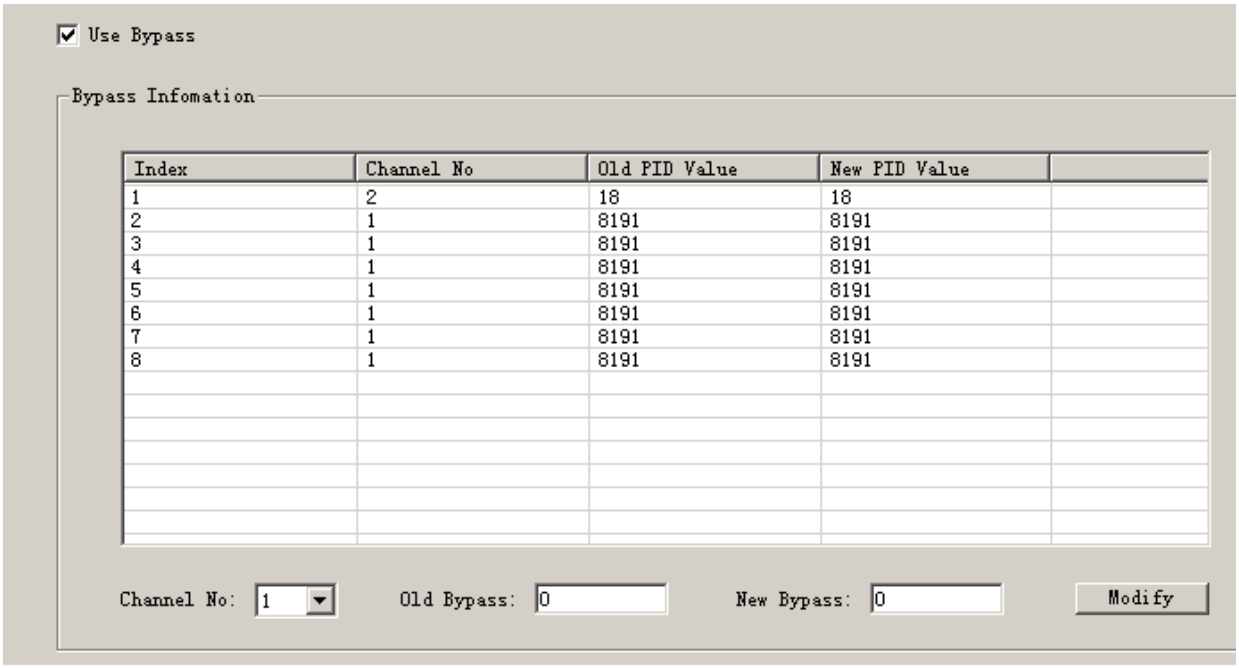
Picture 8.2

P the"ECMG IP" and "ECMG port " in NMS should be the same as the "ECMG IP" and "ECMG port " in CAS

SuperCASID(HEX) should be setting as "54480010".

N “EMMG TCP port”, “EMMG UDP port” in should be setting the same as in the CAS.

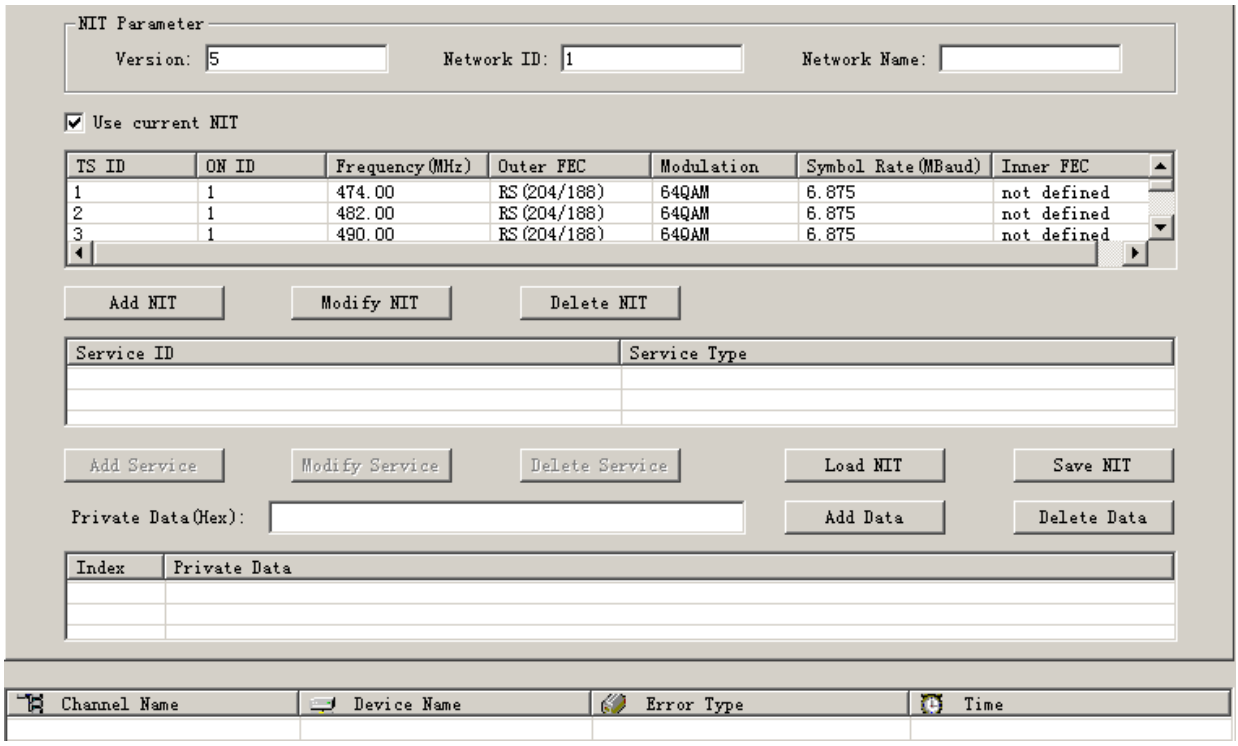
3、 “Bypass parameter” display and “PID mapping” information setting



Picture 8.3

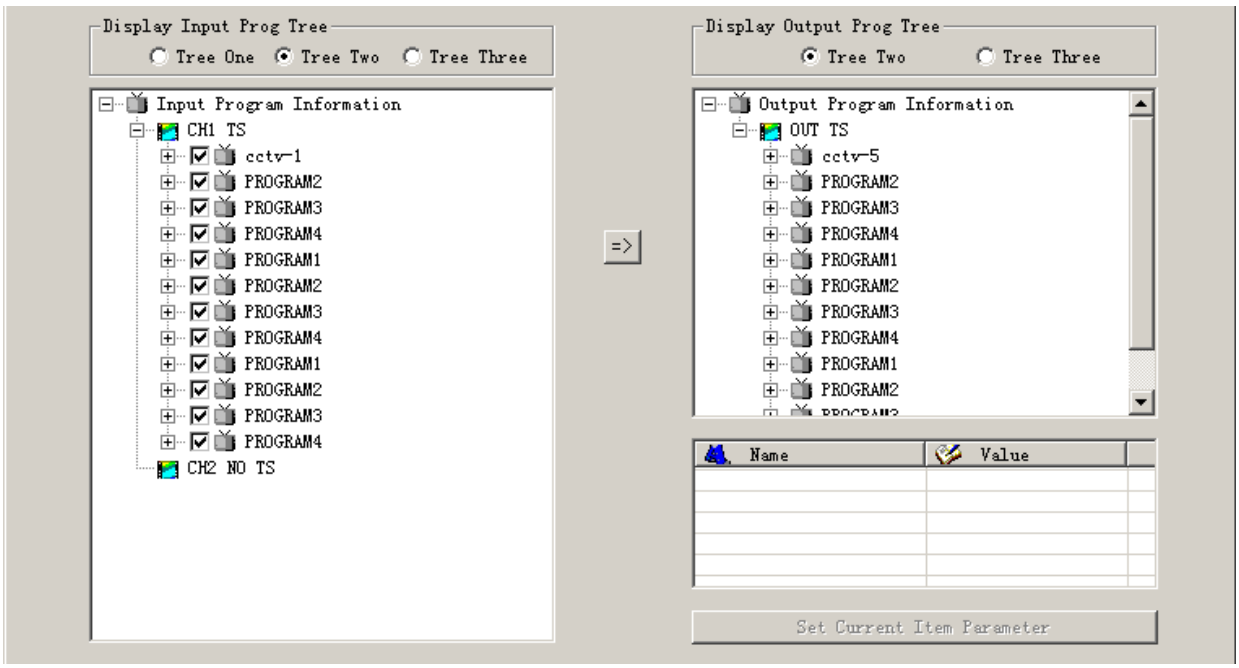
N Please reference to “Bypass setting” document.

4、 “NIT parameter” setting and display

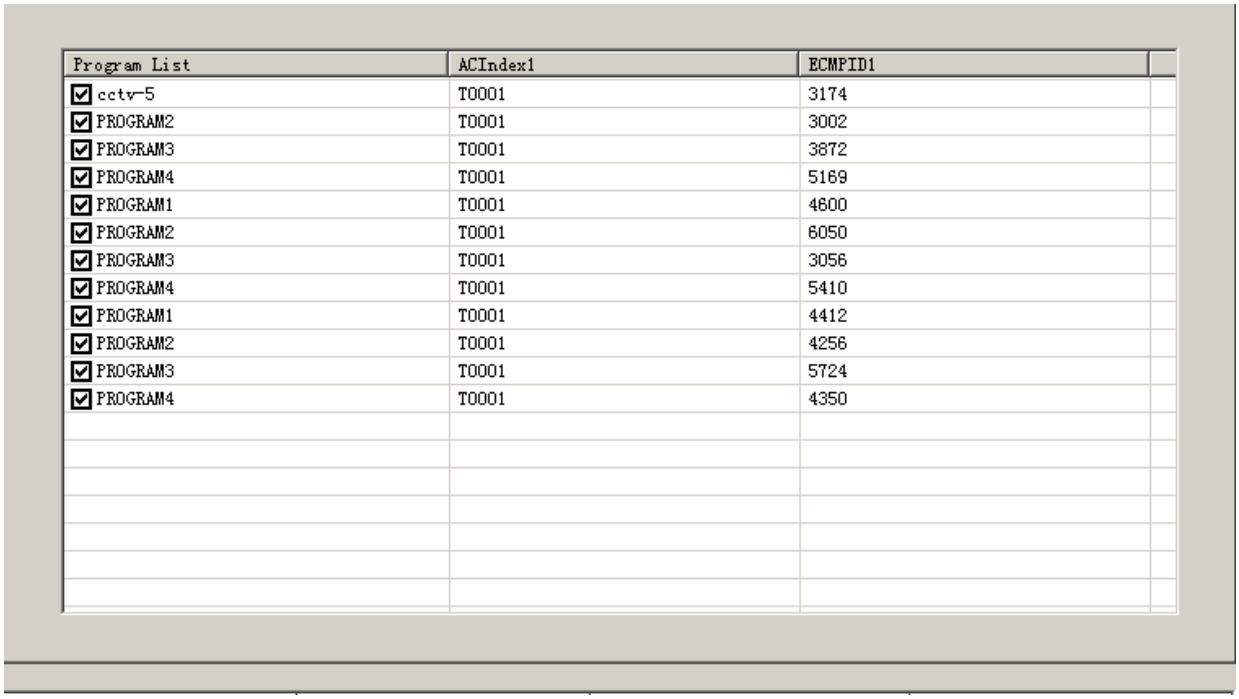


Picture 8.4

5、 “Channel parameter” display and setting



6、 “Scramble setting” display and setting

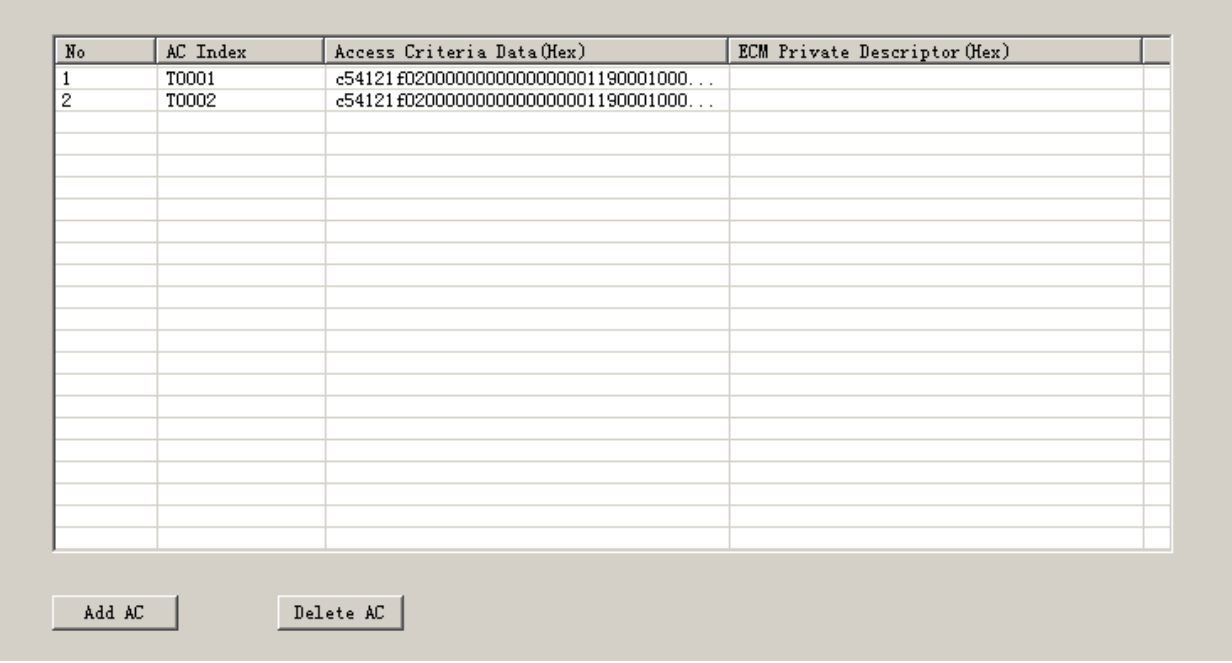


Program List	ACIndex1	ECMPID1
cctv-5	T0001	3174
PROGRAM2	T0001	3002
PROGRAM3	T0001	3872
PROGRAM4	T0001	5169
PROGRAM1	T0001	4600
PROGRAM2	T0001	6050
PROGRAM3	T0001	3056
PROGRAM4	T0001	5410
PROGRAM1	T0001	4412
PROGRAM2	T0001	4256
PROGRAM3	T0001	5724
PROGRAM4	T0001	4350

Picture 8.6

- The program list contained all the programs in the scrambler 。
- The programs which checked“√” means it was scrambled.
- Select the AC data in the “AC index”

7、 “AC information” parameter display and setting



Picture 8.7

P “Access Criteria Data” was generated by “AC generator”